

We claim:

1. A system for rapid manipulation and cutting comprising:
a housing,
a first cutting element,
a drive mechanism adapted to be mounted at least partly within the housing and operatively connected to the first cutting element for imparting relative motion to the first cutting element as a combination of slicing and downward forces at the portion of the first cutting element which is adapted to contact the tissue.
- 10 2. The system of claim 1 wherein the drive mechanism provides torque about the lateral axis of the cutting element to impart the slicing force.
3. The system of claim 2 wherein the torque about the lateral axis of the cutting element causes the first cutting element to rotate eccentrically.
4. The system of claim 1 wherein the housing is shaped substantially as a traditional scalpel.
5. The system of claim 1 wherein the housing is shaped as a handpiece.
6. The system of claim 1 wherein the drive mechanism imparts motion to the first cutting element along two of the three principal axes.
7. The system of claim 1 wherein the housing is shaped for use as a tissue
20 manipulator for blunt force dissection.
8. The system of claim 1, wherein the cutting element is adapted for cutting tissue.
9. The system of claim 8 wherein the housing is adapted for use as a tissue probe.
10. The system of claim 9 wherein the drive mechanism advances the first cutting element relative to the housing.
11. The system of claim 1, wherein the cutting element is adapted for cutting man-made materials.
12. The system of claim 1 wherein the drive mechanism causes the housing
30 to retreat relative to the first cutting element.
13. The system of claim 1, wherein the drive mechanism causes the first cutting element to retract relative to the housing, such that the end of the

housing proximal to the first cutting element acts as a protective guard to prevent accidental contact with the first cutting element.

14. The system of claim 1 wherein the system includes means for electrocautery.

15. The system of claim 1 wherein the drive mechanism includes a pinion gear assembly.

16. The system of claim 1 wherein the drive mechanism includes a pulley drive assembly.

10 17. The system of claim 1 wherein the drive mechanism includes a bevel gear drive assembly.

18. The system of claim 1 wherein the drive mechanism includes a direct motor drive assembly.

19. The system of claim 1 wherein the drive mechanism includes a crank arm drive assembly.

20. The system of claim 1 wherein the first cutting element comprises a plurality of blades.

21. The system of claim 1 wherein the drive mechanism includes hydraulic means.

20 22. The system of claim 1 wherein the drive mechanism includes pneumatic means.

23. The system of claim 1 wherein depth of cut is variable based on the eccentricity of the first cutting element.

24. The system of claim 1 wherein ramp angle of the incision is variable based on the eccentricity of the first cutting element.

25. The system of claim 1 wherein rate of cut is variable based on the eccentricity of the first cutting element.

26. The system of claim 1 wherein reaction load is based on the design of the first cutting element.